

Remarks

The Applicants have amended Claim 10 to recite that the amount of Nb is 0.029% or less. This percentage range is, of course, fully supported by virtue of the fact that 0.029% or less is inherently within the original 0.03% or less range. Also, the new upper range is supported by the Applicants' Example No. 21 in Table 3 of the Applicants' Specification. Entry into the official file is respectfully requested.

Claims 5, 6, 8 and 10 stand rejected under 35 U.S.C. §103 over CH '459. The Applicants note with appreciation the Examiner's detailed comments hypothetically combining CH '459 to the rejected claims. The Applicants nonetheless respectfully submit that all four claims are not obvious over CH '459. Details are set forth below.

As set out on page 1, line 5 from the bottom to page 2, line 21 of the English translation, CH '459 relates to heat resistant steel used for blades and so forth of turbines and compressors. Also, CH '459 is directed to high strength steel having, as tabulated in Table IV on page 11 of the English translation, elongation of less than 20% (14 to 19%) and the tensile strength of about 10,000 kg/cm² (9,281 to 10,898 kg/cm²). On the other hand, the Applicants' claimed steel has, as shown in Figs. 1 to 3 and Table 4, elongation of 30% or more with high workability. Hence, the object and use are completely different from those of CH '459 and one skilled in the art would not look to that publication.

The rejection begins by stating that the:

Specific steel example R4982-3 in table 1 on page 9 of CH '459 meets the claimed composition except for 0.017% S which is slightly higher than the claimed S range of 0.01% or less.

The Applicants agree with the Examiner's frank acknowledgement that CH '459 does not disclose the Applicants' claimed range of S which is 0.01% or less. Instead, CH '459 discloses 0.017% in

steel R4982-3. However, the Applicants respectfully submit that characterizing the difference between the amount of S present in steel R4982-3 of CH '459 relative to the Applicants' claimed range as being "slightly higher" is an understatement of the true difference. The Applicants respectfully submit that the difference is anything but slight, but is in fact quite significant. Specifically, the Applicants' upper range is 0.01%. However, the S content of steel R4982-3 is 70% higher than the Applicants' maximum amount. The Applicants respectfully submit that 70% more S in steel is a significant difference and would not be considered to be "slight" or "slightly higher" to one skilled in the art. Moreover, a careful scrutiny of CH '459 reveals that there are no teachings by CH '459 that the levels should be reduced to a minimal amount. In sharp contrast, Page 7 in the second full paragraph merely mentions that the level should not exceed a maximum level of 0.05%. There is no discussion of minimizing the amount of S. As a consequence, the Applicants respectfully submit that the claimed amount of S is anything but obvious over CH '459.

However, there is more. The Applicants' claims specify the compound addition of Nb and B as an indispensable condition and the maximum content of Nb is 0.029. The Applicants respectfully submit that this maximum amount of 0.029 does not overlap with the disclosed range of Nb in CH '459 of 0.03 to 0.5%. Thus, this is yet another difference. The Applicants further note that steel R4982-3 as referred to specifically in the rejection has an Nb content of 0.1% which is far outside of the claimed range.

The Applicants respectfully submit that one skilled in the art would not modify the range of CH '459 and would not have any reasonable expectation of success upon reading the entire CH '459 disclosure. In that regard, the Applicants invite the Examiner's attention to Page 6 in the third full paragraph which contains a discussion of Nb. First, it should be noted that there is no discussion of Nb alone, but only in conjunction with tantalum. In any event, CH '459 teaches that:

At least 0.03% niobium-tantalum is required to achieve any advantage either in respect of grain size control or conversion with the nitrogen present.

The Applicants respectfully submit that these teachings would a) caution one skilled in the art not to reduce the amount of Nb to less than 0.03 and b) would give one skilled in the art a reasonable expectation that disadvantages or problems would likely occur if the amount of Nb were to be lowered below 0.03%.

As a consequence, the Applicants respectfully submit that CH '459 actually leads one skilled in the art away from the Applicants' claimed range. Of course, prior art teachings that lead one skilled in the art away from the claimed subject matter are compelling evidence of non-obviousness. The Applicants therefore respectfully submit that the solicited claims are non-obvious over CH '459. Withdrawal of the rejection is respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,



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